Title: Research students and the Loughborough institutional repository

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Abstract:

This paper investigates the potential role for research students in an institutional repository (IR). Face-to-face interviews with 34 research students at Loughborough University were carried out. Using a mixture of closed and open questions, the interviews explored the students' experiences and opinions of publishing, open access and the proposed Loughborough repository.

As both authors and readers, students were most interested in access to complete theses, postprints and conference papers. The ability to disseminate their work and receive feedback and commentary were the most important motivators to students depositing work in the IR, closely followed by the principle of open access. The greatest deterrents were the risk of being unable to publish elsewhere later, the ownership of copyright, and plagiarism.

Appropriate recommendations are made for the implementation of an institutional repository.

Introduction

Over the last 15 years, worldwide access to the Internet has irrevocably altered patterns of communication, both formal and informal. One of the major areas of change has been in scholarly communication and, within this, in scholarly publishing. With the advent of freely accessible public, personal, departmental, institutional and subject based web sites and repositories, scholars have more options to disseminate their work than ever before.

The research described here was concerned with the activities and attitudes of one group of scholars – research students – with respect to this 'open access' (OA) publishing. Its focus was the potential role for research students in the new institutional repository (IR) at Loughborough University.

Research students are important potential users of an IR. Not only are they researchers in their own right, but also they are the academic authors of the future. As new contributors to the scholarly publishing system, they have the potential to lead the way in adopting OA principles.

Open Access publishing

Open access is defined as the right to "read, download, copy, distribute, print, search or link to the full text" of articles which are freely available either on the Internet (Budapest Open Access Initiative (Chan *et al*., 2002)), or in an online repository supported by an academic or similar institution (Bethesda Statement on Open Access Publishing (Suber, 2003)).

Interest in OA publishing has arisen for many reasons - technological, financial, ethical, political and scholarly. Issues such as preservation (Nicholas *et al*., 2005: 218), the 'serials crisis' (Ayris, 2001: 34; Banks, 2004: 136; Falk, 2004: 184), and research impact have been widely discussed in the literature (Berry, 2000: 38; Crow, 2002: 5; Lamb, 2004: 146 and Lynch, 2003). The different interest groups - researchers, publishers, authors and sponsors - have been active in expressing their views.

The principle of OA receives support from many quarters, and especially from those responsible for funding research (House of Commons Science and Technology Committee, 2004). The Research Councils UK (RCUK) has already proposed that recipients of research awards should be obliged to deposit copies of their outputs in digital repositories (Research Councils UK, 2005). This will clearly have an impact on the publishing behaviour of current and future research students.

Institutional repositories: description

An institutional repository is

> "an electronic system that captures, preserves, and provides access to the digital work products of a community" (Foster and Gibbons, 2005).

Its characteristic features are as follows:

- It is institutionally defined – unlike a subject repository, the IR captures only the intellectual property of the host institution.
- Content may be purely scholarly (Crow, 2002), or may comprise

administrative, teaching and research materials, both published and unpublished.

- It is cumulative and perpetual – once items are submitted they should not be withdrawn. This carries with it a long term obligation on the host institution to preserve IR content.

- It is open and interoperable – a primary goal of an IR is to disseminate the institution's intellectual product.

- In collecting, storing and disseminating information it contributes to the process of scholarly communication.

(from Crow, 2002: 16-19 and Ware, 2004: 115).

The Joint Information Systems Committee (JISC) has recently been promoting the development of IRs in UK universities. In July 2005 some 24 UK universities already had an IR, and others, like Loughborough, were at the planning stage. The new 'OpenDOAR' Directory of Open Access Repositories <http://www.opendoar.org> contains an up-to-date list of digital repositories in the UK and worldwide.

Aims and objectives

The aim of this project was to explore and assess the value of the Loughborough University Institutional Repository (LUIR) to a hitherto unconsidered stakeholder group – research students.

Specific **objectives** were:

1. To explore previous research into the attitudes and motivations of academic authors, particularly with respect to OA publishing.

2. To establish the potential role of research students in the LUIR –

both as contributors and as users of information.

3. To investigate interdisciplinary differences in research students' attitudes toward the LUIR.

4. To use the findings of the project to make appropriate recommendations to the managers of the LUIR.

Author attitudes to OA publishing

The success of an IR depends on the willingness of researchers to use it. Many IR administrators have overcome technological barriers, only to find that a greater challenge is that of persuading authors to deposit their work (Foster and Gibbons, 2005; Genoni, 2004: 300, Horwood *et al.*, 2004: 170). It is therefore important to understand what might motivate or deter an author from contributing to an IR.

No previous studies have explicitly considered the views of research students, but several have recently addressed those of published academic authors. Attitudes to OA publishing, electronic journals and, to a lesser extent, IRs have been considered. In brief, the findings are as follows.

- The **principle of open access** receives widespread support from authors.   They felt that articles should be made available electronically for free (Swan and Brown, 2003: 29) and that the 'principle of free access for all readers' was an important reason for publishing in OA journals (Swan and Brown, 2004: 220; Schroter *et al.*, 2005).
- Levels of **awareness** of OA issues are variable. Authors may support OA scholarly communication, but lack awareness of specific OA initiatives (De Beer, 2005: 127; Swan and Brown, 2005: 43).

- The benefits of **accessibility and impact** have been shown to be major selling points of the OA model. At one institution, access to the scientific literature and exchange and transfer of information are seen as the main advantages of self-archiving (Hajjem and Harnad, 2005). Wide and rapid dissemination; easier and faster literature searching; more equitable access; greater and broader readership; and more frequent citation have all been cited as benefits (Rowlands *et al*., 2004: 13; Schroter *et al*., 2005; Swan and Brown, 2004: 220; Swan and Brown, 2005: 10).

- The issue of **quality** is an important one for most researchers. Although alternative quality measures are possible in OA publishing – for example, post publication public commentary and citation analyses – studies have found that authors are overwhelmingly in favour of traditional peer review for guaranteed quality (Swan and Brown, 2003: 31; Nicholas *et al*., 2005: 213).

- Some authors have concerns over intellectual property **rights,** including:
    - Concern that posting to an OA repository will be considered prior publication and may prevent the work from being accepted later for publication in a journal
    - Concern that placing an article in a repository will infringe copyright agreements with others, for example employers or publishers
    - Concern over control over the work and protection of the author's own rights (Gadd *et al*., 2003a: 341).

However, Swan and Brown (2005: 56) noted that authors are not always aware of the full copyright implications of their work; and Rowlands *et al*. concluded that

"authors' views on copyright may be characterised as a mixture of indifference, ignorance … and principled resentment aimed

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primarily at commercial publishers ("information should be free")."

(Rowlands *et al*, 2004: 14)

- The **practicalities** of depositing should not deter authors. Both Swan and Brown (2005: 51) and Carr and Harnad (2005: 5-6) reported that the process of depositing articles became quicker and easier with practice.

It remained to be seen whether the views of research students would reflect those of more established authors.

Research methodology

The research tool chosen for the project was the structured interview. The purpose was to establish the level of knowledge and views of Loughborough research students concerning OA publishing, digital repositories and, particularly, the LUIR. It was also hoped that the interviews would stimulate students' interest in the LUIR.

Design of the interview schedule

Many of the questions were drawn from the published literature. The recent work by Swan and Brown (2005) was a particularly useful source, but in all cases the questions were adapted and extended to be relevant to research students.

The interview schedule comprised five sections.

Section 1. Introduction to the project and background information about the research interests and publishing practices of the student. Search behaviour, publications history and reasons for publishing were explored. All but the final question were open ended.

Section 2 investigated the students' current understanding of OA publishing. Its purpose was to clarify and reach agreement on the key terms 'open access' and 'digital repository' and establish the respondents' experience of these. Cards displaying definitions of both terms were presented to the students (see Figure 1).

Figure 1. Definitions used in the interviews.

Open access is …

"the right to read, download, copy, distribute, print, search or link to the full text of articles which are freely available either on the Internet or in an online repository supported by an academic or similar institution"

A **digital repository** is…

"an electronic system that captures, preserves, and provides access to the digital work products of a subject or institutional community"

Section 3 explored some of the practical issues surrounding students' use of the LUIR. It covered the type of work students would want to either deposit or find in the repository; and who they felt should take responsibility for different tasks. The section finished with their views on mandatory deposit.
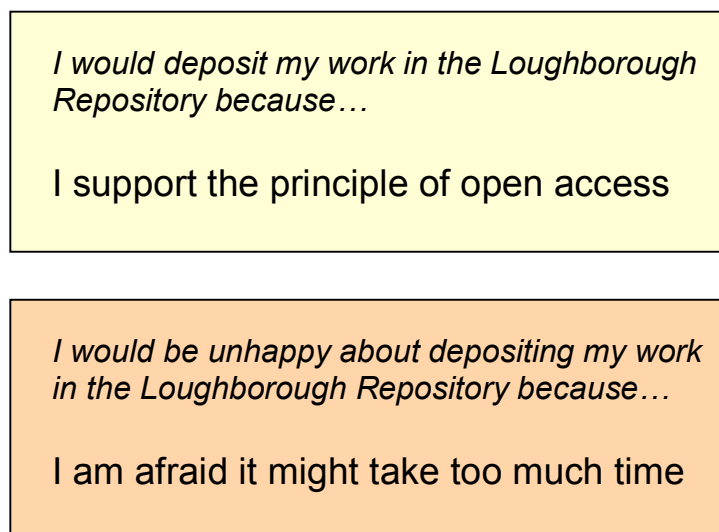
In addition to gathering useful background information, the first three sections of the interview gave students the opportunity to gain greater understanding of the nature of an IR. Questions and comments were encouraged. Given that many of the respondents began with little or no idea about OA publishing or digital repositories, it was essential that the

concepts were clearly understood before they started the important fourth section.

Section 4 explored the motivations and deterrents to depositing work in the LUIR. Initially, an open ended discussion was considered. However, given that prior knowledge of OA publishing was not assumed, students would have had little time to marshal their thoughts. It was therefore felt that a series of closed questions would elicit the most useful data.

Following initial pilot interviews, the format chosen was to present a series of statements on cards (see Figure 2) and ask respondents to place each card in an 'agree' or 'disagree' pile. A total of 60 statements were presented randomly to avoid any order effects. Thirty-two cards showed reasons why a student might choose to deposit their work in the LUIR (i.e. motivations, printed on pale yellow card), 28 cards showed reasons why they might choose not to (i.e. deterrents, printed on pale orange card). To avoid misconceptions later, the interviewer emphasised that not all the statements were necessarily true of the LUIR.

Figure 2. Examples of statements presented to respondents.

I would deposit my work in the Loughborough Repository because…

I support the principle of open access

I would be unhappy about depositing my work in the Loughborough Repository because…

I am afraid it might take too much time

When all cards had been allocated, the interviewer sorted the cards in the 'agree' pile into motivations and deterrents. Students were then asked to identify the statements of each type which were most important to them and to place these in ranked order. For the purposes of the analysis, the statements were then coded into three categories: 'disagree', 'agree (but less important)' and 'agree (ranked in the top five)'.

Section 5 included only one question: on balance, would the student deposit any of their work in the LUIR? Final comments and questions were welcomed.

Selection of participants

In order to compare the attitudes toward the LUIR of research students in different disciplines, it was decided that students from one department in each of Loughborough's three faculties should be approached. The intention was to interview similar numbers of students from each of the three faculties. The sample type was therefore a cluster sample of a population comprising all research students in the university. The departments initially chosen were Aeronautical and Automotive Engineering (Faculty of Engineering), Physics (Faculty of Science) and Social Sciences (Faculty of Social Sciences & Humanities (SSH)).

The reasons for choosing these departments were fourfold:
- they were representative of their faculties
- as disciplines, they had different publication cultures and therefore potentially different experiences of OA publishing

- they each listed the names of their research students (with email addresses) on their departmental websites

- none was involved in the piloting of the LUIR itself, nor in other ongoing studies.

Selected research students were emailed individually. To improve the response rate, emails were personalised to the student.

These first emails initiated a trickle of responses, but it was clear that there would be insufficient for the study. Additional departments were then approached, until at least eight students from each faculty were available for interview. The eventual list of disciplines represented is shown in Table 1.

Table 1. Research student responses by faculty and department.

Faculty of Engineering:

Department	No. of students emailed	No. of students responding	Response rate	No. of students interviewed	Interview rate
Aeronautical and Automotive Engineering	49	11	22%	5	10%
Civil and Building Engineering	44	16	36%	8	18%
Faculty total:	**93**	**27**	**29%**	**13**	**14%**

Faculty of Science:

Department	No. of students emailed	No. of students responding	Response rate	No. of students interviewed	Interview rate
Human Sciences	41	17	41%	5	12%
Information Science	4	2	50%	2	50%
Physics	19	4	21%	2	10%
Faculty total:	**64**	**23**	**36%**	**9**	**14%**

Faculty of Social Sciences & Humanities:

Department	No. of students emailed	No. of students responding	Response rate	No. of students interviewed	Interview rate
Design and Technology	5	4	80%	2	40%
Economics	1	1	100%	1	100%
English	1	1	100%	1	100%
Geography	20	5	25%	1	18%
Politics, International Relations and European Studies	17	12	71%	3	18%
Social Sciences	21	7	33%	4	19%
Faculty total:	**65**	**30**	**46%**	**12**	**18%**

|	No. of students emailed	No. of students responding	Response rate	No. of students interviewed	Interview rate
Total all faculties:	**222**	**80**	**36%**	**34**	**15%**

Research student interviews: results

Sources of information

Students were asked how they went about finding material for their

research, and in particular, which sources they used. The results are

shown in Figure 3.

The most popular source was the online subscription database, this was mentioned by 26 students. A number mentioned specific databases (e.g. 'Web of Science'). Three students had signed up to an alerting service to ensure they were informed of the latest developments in their subject area.

The second most popular source was the online search engine. Google and Google Scholar were clear favourites. For some students these were the preferred starting point for a literature search.

Figure 3. Sources of information used by research students.
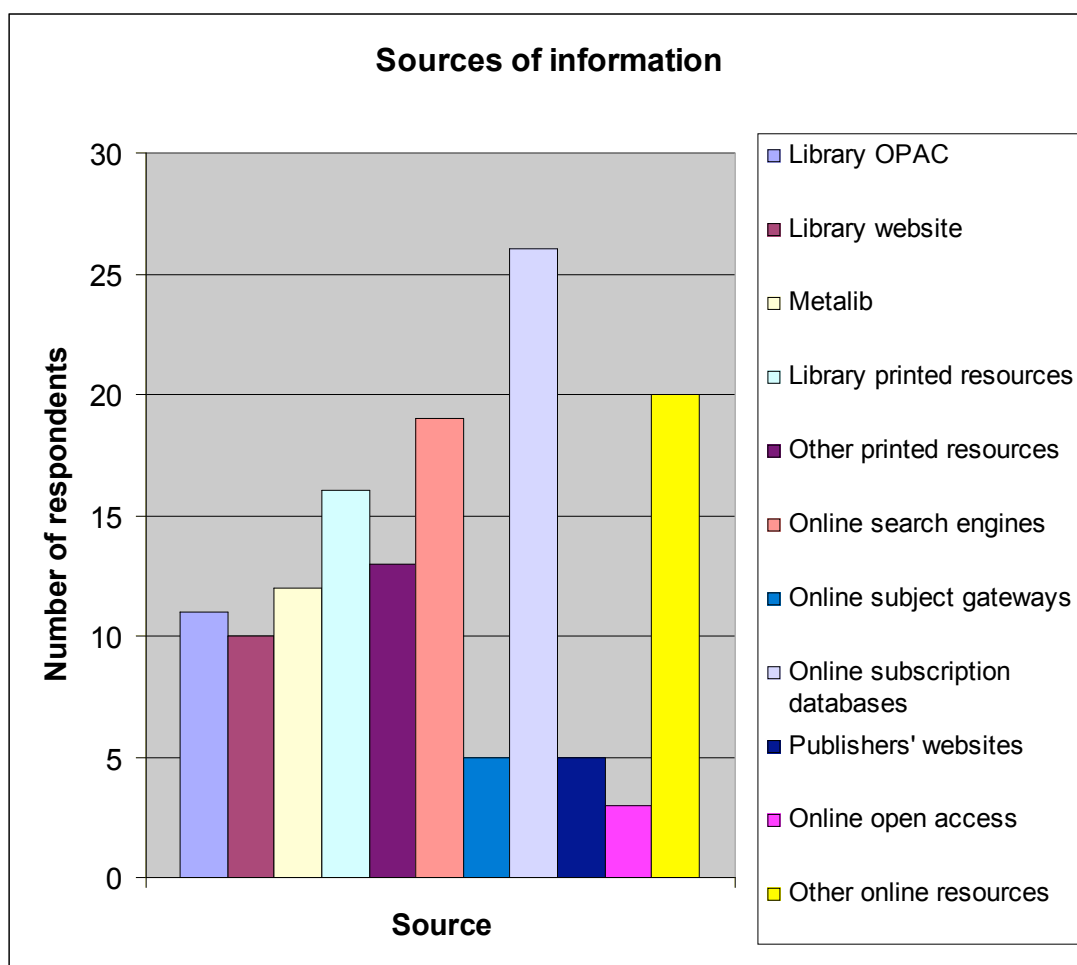
Research students were quite active in sourcing information from less accessible places. They used other academic libraries, both officially via the SCONUL scheme, and unofficially through friends; they visited medical and organisational libraries; they contacted authors directly and received papers via email; they borrowed papers and dissertations from their supervisors and departments; and they acquired conference proceedings and trade publications.

OA sources were the least accessed of all. Only three students mentioned these.

Publishing history

Of the 34 research students interviewed, 28 had previously made their work publicly available. Sixteen had published articles, mostly in publications that were available in both printed and electronic form; 14 had produced conference papers and 14 specified other publications, for example their own or departmental websites.

As for why they made their work available where they did, the reasons given were as follows:

- Influenced by supervisors or colleagues
- Influenced by research funders
- Influenced by co-author
- Recognised / reputable / authoritative publication for the subject area
- To get feedback (e.g. via own website or after emailing a paper to another researcher)
- To meet and exchange ideas with others in the field (e.g. when delivering a conference paper)
- Convenience / local contact (e.g. journal editor is in same department)

Reasons for publishing

All 34 students agreed that it was important to publish, but their reasons for publishing varied (Table 2).

All the students agreed that it was important to publish in order to disseminate their research findings. Most students agreed that publishing was important for advancing their careers. A lower proportion felt that publishing was important for gaining funding (64.7%) or for personal prestige (55.8%). Those that disagreed generally commented that they were not planning an academic career, they therefore felt that publishing was irrelevant to them.

Table 2. Research students' reasons for publishing.

Reason	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
To communicate results	22	12	0	0	0
To advance career	16	13	3	0	2
For personal prestige	6	13	12	3	0
To increase chances of funding	8	14	9	2	1
For direct financial reward	0	2	14	15	3

The issue of direct financial reward elicited by far the most negative responses. Students had not previously received any financial reward for their publications and did not feel it was a motivating factor.

Having responded to these closed questions, students were asked whether

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they could suggest any other reasons for publishing their work. Twenty-two

students gave additional reasons. These included:

- To get feedback

- To vindicate the quality of their PhD work

- To communicate to practitioners in the field (as distinct from other

  academics)

- Because it was expected

- To make others aware of the work, especially those that might benefit

  from it (e.g. certain social groups or lobbyists)

- For the benefit of the research group (rather than the individual)

- To show what the student's time has been spent on, and to provide

  evidence for appraisals

- To prove oneself

- To develop arguments which will help the thesis and viva

- For personal satisfaction (including seeing one's name in print)

- For peer acceptance

Open access publishing

The OA movement

Although just over half (55.9%) of the students said they knew what was

meant by 'open access', their understanding varied considerably.

Responses ranged from

> "Making information freely available to everyone, especially

> scientific and academic or scholarly information" (Science student)

and

> "Where people can put their results or peer reviewed work on the

web, and others can access and download them without paying a

subscription" (SSH student)

to

"Free on the web" (Engineering student)

or

"Shareware" (SSH student).

Most had grasped the idea that OA work was available to everyone, and most understood that it was free of cost to the user. One or two went on to elaborate, mentioning issues such as removing restrictions on access to databases (particularly in developing countries); standardisation and the compatibility of metadata; and freedom from passwords or membership.

Of the few who were aware of the OA 'movement', even fewer could say how they knew about it. One had read about it in a trade paper, another had heard about it on a Radio 4 programme. A couple had come across OA papers whilst searching for information for their projects.

The serials crisis

Eight research students said they had heard of the 'crisis' in scholarly publishing. They talked about the increasing pressure to publish and the move towards digital information. When asked for their views, some of the issues raised included:

• The need for publishers to make revenue

• The need for scholarly information to be freely available

• Increasing electronic subscription rates

• Inequities between the increases in library budgets and journal costs

• The impact on disabled people of being able to access more material on

the web

- The time it takes to publish work

- The relative prestige of new journals compared with existing ones, and the possible devaluation of the quality of research output

Digital repositories

Slightly under half (41.2%) of the interviewees claimed to know what was meant by a 'digital repository', although more than this were able to make a good guess. Some of their descriptions were very simple:

"Big computer database" (Science student)

"Reservoir of information" (Engineering student)

One had ambitious views:

"Digital version of the British Library" (Science student)

Other students gave more information:

"Virtual domain where research papers can be collected and stored where anybody can access and use them" (SSH student).

Only seven students were aware that they could deposit their work in a digital repository, and only one had actually done so.

Having accepted the proffered definition of a digital repository (see Figure 1), seven students said they were aware of subject repositories in their field, and another seven knew of an IR. None of the research students had been aware of the proposed LUIR before being contacted regarding this project.

The Loughborough repository: practicalities

Type of work to be deposited

The students were asked to say which of a list of 15 types of work they would want to deposit, assuming that they were both willing and able to do so. Possible responses for each were 'Yes', 'No' and 'Don't know'. The results are shown in Figure 4.

Figure 4. Types of work to be deposited in the Loughborough Repository

What work would students deposit? (2)

■ Yes ■ No □ Don't know
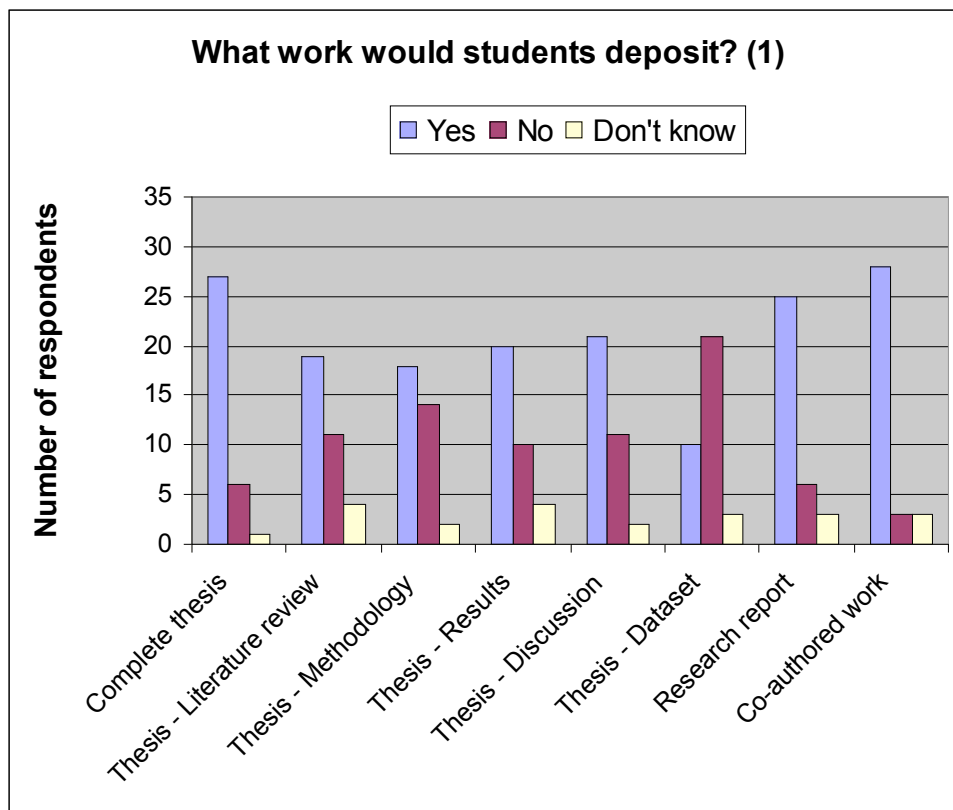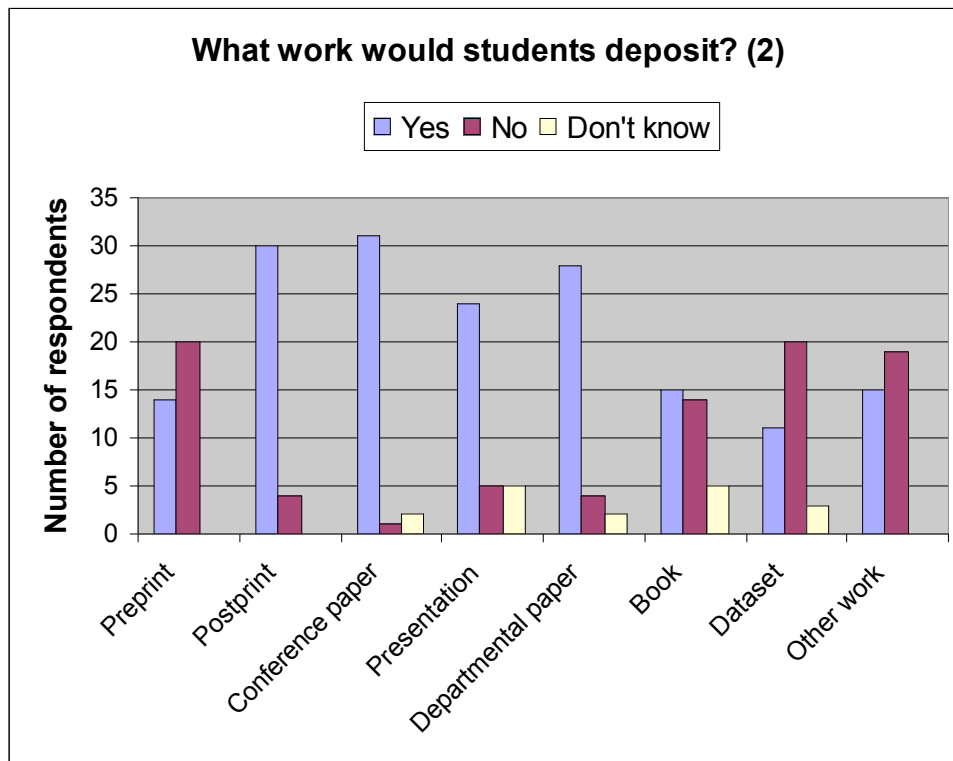
Over three-quarters of the students agreed they would deposit conference papers (91.2%), postprints (88.2%), departmental papers (82.4%), co-authored work (82.4%, assuming the co-author agreed), and their complete thesis (79.4%). A small number of students were adamantly against depositing their theses, largely because they feared that others would take their ideas.

Research students were most negative about depositing datasets (61.8% said 'No' to depositing the dataset from their thesis, and 58.8% said 'No' to depositing datasets generally). Reasons for this included concern over confidentiality, ethical issues, students' use of group- rather than individually-collected data, the expense of collecting data, and students' desire to use their data themselves further.

Students were also concerned about depositing preprints (58.8% said 'No') and books (41.2%). A significant number chose not to deposit the individual parts of their thesis separately, one reason given was concern over the need for subsequent changes to the work, while another student cited potential problems over cross-referencing between different parts of the thesis.

Several students were concerned about the quality or usefulness of their work. Two Engineering students stated they would only deposit material that was of use or interest to others.

Some students expressed concern over copyright issues (especially with regard to postprints and books); others were happy to deposit what they considered to be 'formal' pieces of work (e.g. conference papers and postprints) but not the 'informal' items (such as departmental papers and presentations).

When asked to specify any other material that they might want to deposit, just under half (44.1%) of the students made suggestions. These included software code (suggested by several Engineering students); collections of references and bibliographies; audio presentations for visually impaired people; executive summaries; images and artwork; 'unused' thesis chapters (i.e. written up material that is left out of the final thesis but still makes a worthy contribution in its own right); and administrative documents such as applications for funding and research proposals.

The research student as reader

Research students as readers were in many cases keen to find materials they wouldn't themselves have deposited. Statements such as

"I would like to see as many materials as possible" (SSH student),

or

"anything I can get my hands on" (Engineering student)

combined with a full set of 'Yes' answers, were typical.

The overall results are shown in Figure 5. The charts show that (compared to the results shown in Figure 4) many more students have said 'Yes' to each of the types of work.

Figure 5. Types of work students would like to find in the Loughborough Repository

What work would students like to find? (2)
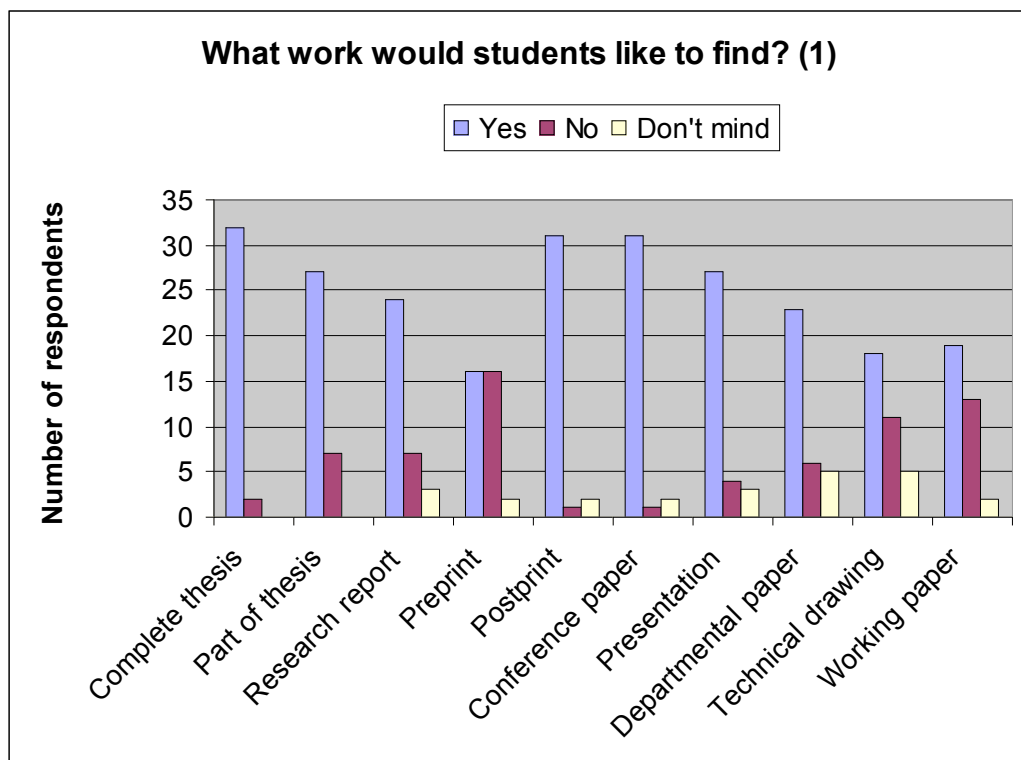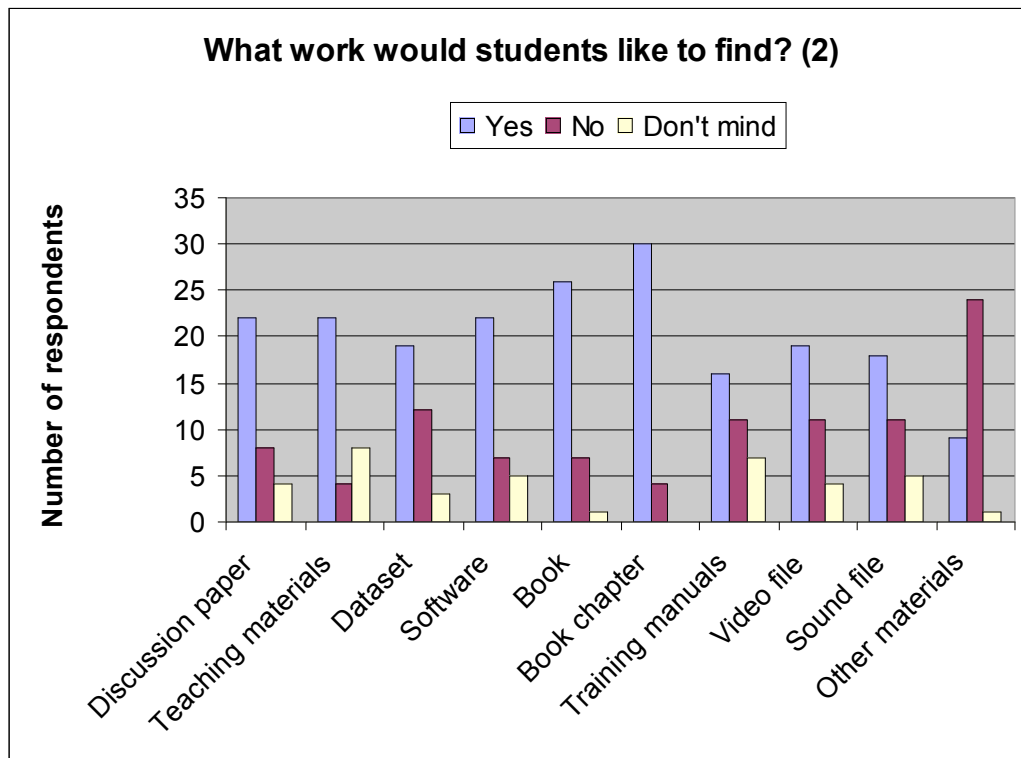
The most wanted types of work are complete theses (94.1% of students said 'Yes'), postprints and conference papers (each with 91.2% 'Yes' responses) and book chapters (88.2%). These are clearly the materials with which students are most familiar and which have the greatest credibility for them.

Preprints, working papers and datasets are the least wanted items, having 47.1%, 38.2% and 35.3% 'No' answers respectively.

When asked what other materials they might like to find, students requested open source software, bibliographies, collections of web links, linked citations, images and technical or specialist glossaries. One student felt there should be some measure of quality on the work:

"it should have some verification as to whether it is refereed or not" (Engineering student).

Responsibility for tasks

Students were presented with a list of tasks which might be involved in depositing work on the LUIR. They were asked to indicate whether each task should be the responsibility of the student or of the repository administrators. An 'either or both' category was permitted if necessary. The results are shown in Figure 6.

The chart shows a clear consensus over some of the tasks. All students agreed that it was their responsibility to provide an abstract of their work, and most (94.1%) felt that they should also be responsible for key words. As one student said:

> "these are normal tasks for producing a paper and therefore not
>
> extra work" (Engineering student).

A few students were concerned over the standardisation of key words and felt that the repository administrator might be in a better position to achieve this.

Figure 6. Responsibility for tasks involved in depositing work in the Loughborough Repository
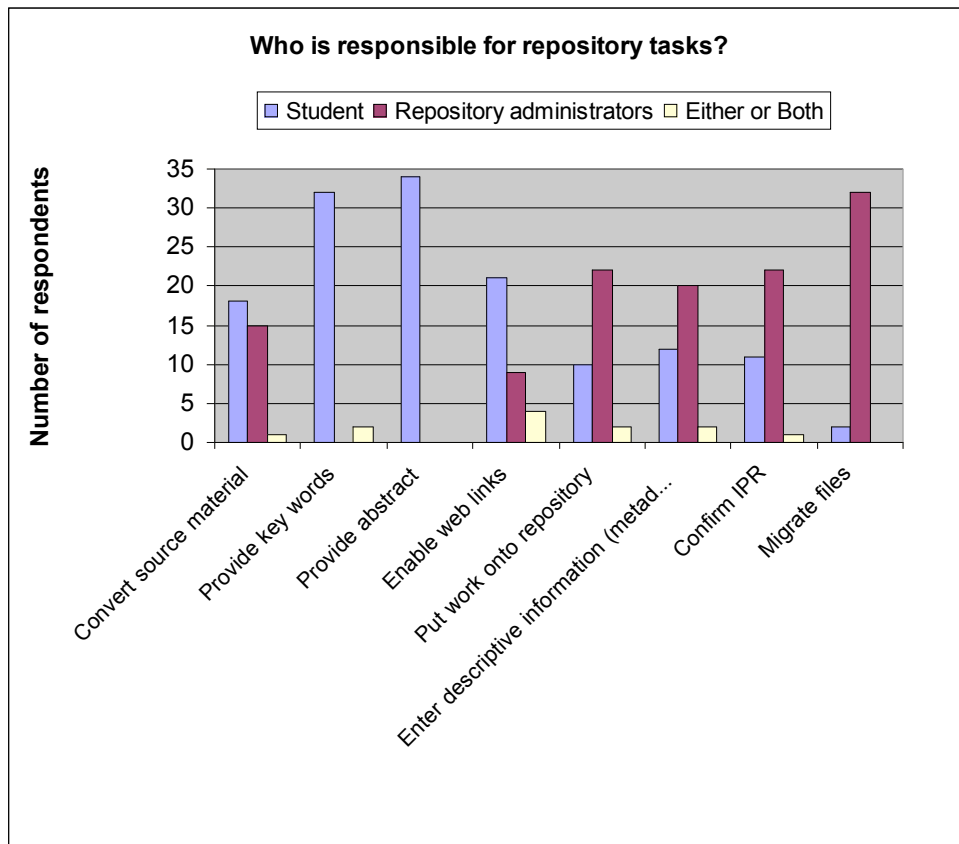
Most students felt responsible for one other task: enabling web links (61.8%).

Research students generally felt that the 'back end' tasks should be the responsibility of the administrators. Thus, 94.1% of students said that the repository administrators should be responsible for migrating files ('converting files to the latest version of hardware or software'), 64.7% agreed that the administrators should confirm intellectual property rights and actually put the work onto the repository; and 58.8% wanted the administrators to enter the descriptive information (i.e. metadata).

Some of the students' views were obviously coloured by their lack of knowledge or confidence in their abiility to perform the tasks. Several said that it depended on how complicated a task was. For example, regarding putting the work onto the repository:

> "It depends on how difficult it is to put it on, how long it will take. It may be better for the repository administrator to do it to encourage more people to use it" (Science student).

However a few wanted nothing to do with it:

> "I wouldn't want to have anything to do with putting it on in case I made a mess of it" (SSH student).

Students' views concerning the responsibility for intellectual property rights followed a similar pattern. A minority thought it should be their responsibility:

> "it's my work so I know more about this" (Engineering student),

while others either felt they lacked the knowledge:

> "I don't know enough about copyright" (SSH student).

Mandating deposit

Following Swan and Brown's example (Swan and Brown, 2005: 62), students were asked if they would comply if either the university or their research funders required them to self-archive their work. Their responses are displayed by faculty in Figure 7. This chart shows that scientists and engineers appear to be much more willing to comply with a mandate to deposit than are social scientists and humanities students. This transpired to be the only variable for which a clear difference could be seen between students of the different faculties. The numbers of participants, however,

were too low to ascribe statistical significance to these results.

No research students would refuse to comply.

Figure 7. Students views on complying with mandatory deposit
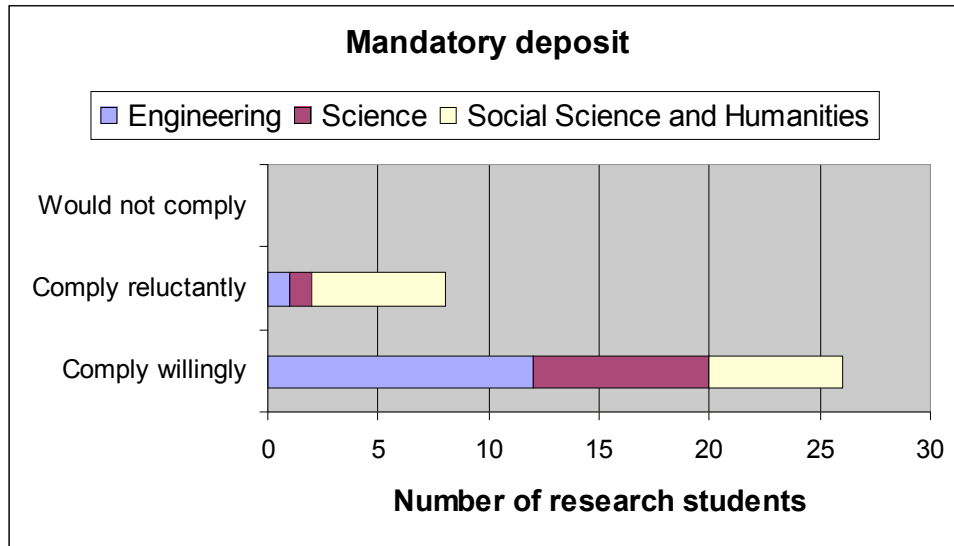
Many students were extremely positive about depositing their work. Some felt it was a moral obligation:

"I'm funded by public sector and my research should be open for the public to view it" (Science student)

"My work is funded by a charity – it deserves to be available to the public" (Science student).

Others took a pragmatic view:

"ESRC want a copy anyway, it is no problem to put an electronic copy into the Loughborough repository" (SSH student).

"Your thesis is going to be available in the library – this just makes it easier for people to look at it" (Science student)

Some were enthusiastic about the opportunity to disseminate their work:

> "It's a good thing to get your work known by more people. It's good for future research for other people to have access to your ideas… there's no sense keeping it a secret" (Engineering student).

The dissenters gave various reasons. One was concerned about the confidentiality of his work. Two others felt that they should not be obliged to deposit their thesis work until they had completely finished with it. One student said he would be reluctant at least initially:

> "because I want to take up a research fellowship which willl extend the work into articles and maybe a book – I don't want anybody to take the ideas. It would perhaps be OK about 12-18 months after completion because then I will have already published" (SSH student).

One student had specific concerns about it. She agreed reluctantly

> "because of my worry over copyright and getting published in journals. Otherwise I would comply willingly" (SSH student).

A few research students qualified their responses:

> "if they helped me" (Engineering student)
>
> "as long as it is the final copy" (SSH student).

Only one student objected on principle:

> "It's a bit too dictatorial. Who owns the research? You shouldn't feel bullied into doing something you don't want to" (SSH student).
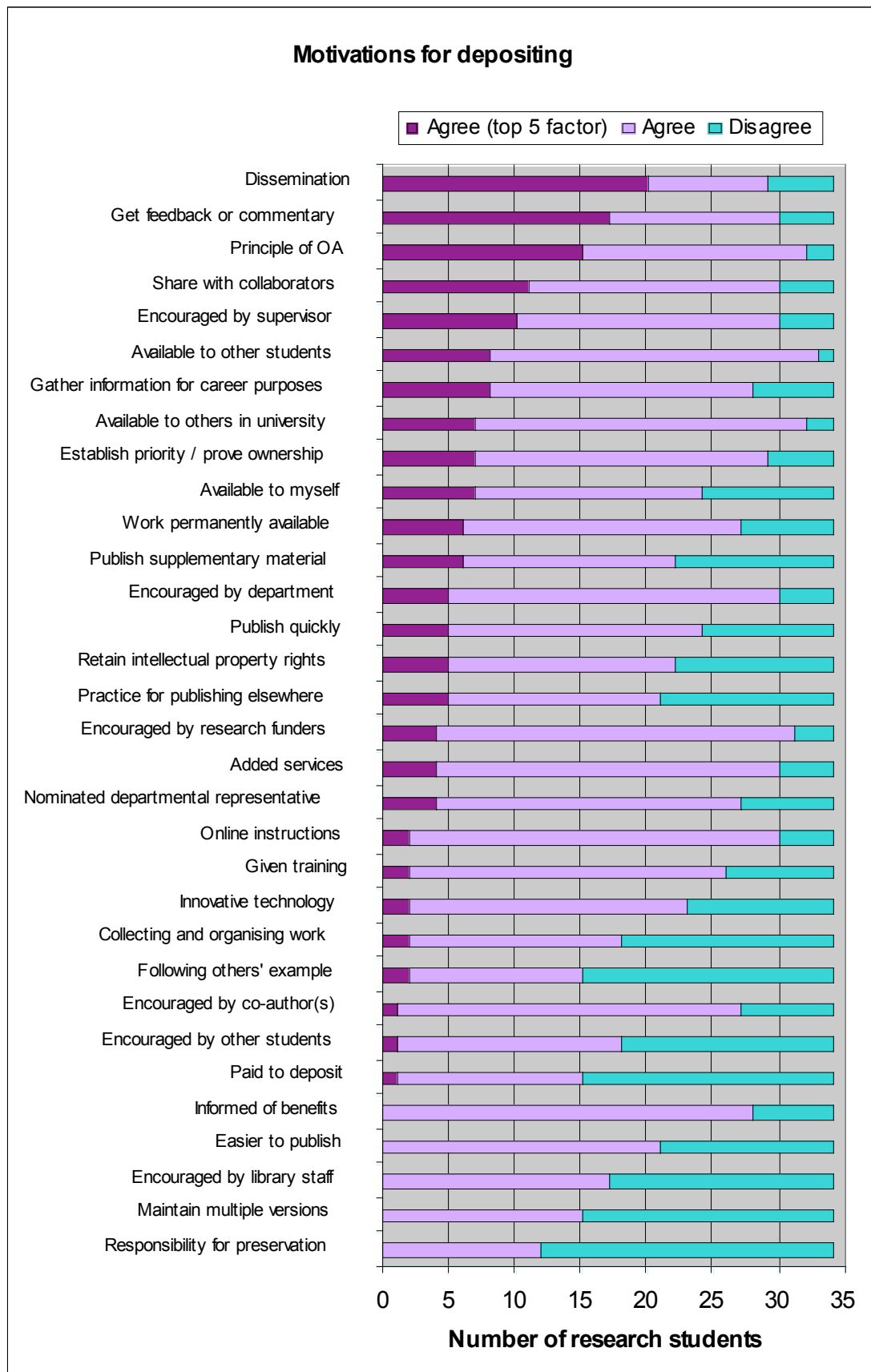
Attitudes toward depositing

Motivations

In Figure 8 the 32 'motivation'statements are presented in order of the number of times they received a top five (i.e. important) ranking, and then by the total number of 'agree' responses.

The chart shows clearly which are the most important motivations to the research students. Over one half of all the students (58.8%) agreed that 'it is a good way of disseminating my work to the research community and beyond' as a top five factor; moreover, eight of these students chose this as their number one motivation. Seventeen students (50%) put 'to get feedback or commentary' in their top five, and 15 students (44.1%) chose 'because I support the principle of open access'. Other frequently occurring top five factors are 'to share material with my research collaborators' (32.4%); 'if I was encouraged to do so by my supervisor' (29.4%); 'to make my work available to other students' (23.5%) and to 'gather information for career purposes' (23.5%).

Figure 8. Motivations for depositing in the Loughborough Repository

Motivations for depositing

Legend: ■ Agree (top 5 factor) ■ Agree ■ Disagree

Categories (top to bottom):
- Dissemination
- Get feedback or commentary
- Principle of OA
- Share with collaborators
- Encouraged by supervisor
- Available to other students
- Gather information for career purposes
- Available to others in university
- Establish priority / prove ownership
- Available to myself
- Work permanently available
- Publish supplementary material
- Encouraged by department
- Publish quickly
- Retain intellectual property rights
- Practice for publishing elsewhere
- Encouraged by research funders
- Added services
- Nominated departmental representative
- Online instructions
- Given training
- Innovative technology
- Collecting and organising work
- Following others' example
- Encouraged by co-author(s)
- Encouraged by other students
- Paid to deposit
- Informed of benefits
- Easier to publish
- Encouraged by library staff
- Maintain multiple versions
- Responsibility for preservation

X-axis: Number of research students (0, 5, 10, 15, 20, 25, 30, 35)

With over half the research students disagreeing, the most disagreed with statements were:

1. 'because I would like somebody else to take responsibility for preserving my work' (64.7% disagreed)

2. 'because I would like to maintain multiple versions of my work' (55.9%)

3. 'if I was following the example of many others' (55.9%)

4. 'if I was paid to do so' (55.9%)

5. 'if I was encouraged to do so by library staff (50%)

Deterrents

Overall, Figure 9 shows that fewer students agreed with the statements presented as deterrents. The greatest concerns were 'if I deposit my work in the Loughborough Repository I may not be able to publish it elsewhere later' (55% included this in their top five); 'others might copy my work without permission' (32.4%); 'other publishers owning the copyright of previously published material' (29.4%); the risk of plagiarism (29.4%) and 'my work is confidential' (26.5%).

All 34 of the research students disagreed with the following two statements:

1. 'I would prefer to make my work available only on my personal website'

2. 'I would prefer to make my work available only on my departmental website'

Nearly all disagreed with these:

3. 'I would not want my work to be subject to a quality control process' (97.1% disagreed)

4. 'I would not want my work to be deposited with work from other

disciplines' (94.1%)

5. 'I am concerned about the long term feasibility of the repository' (94.1%)

6. 'I am concerned that my work might not be preserved in the long term' (94.1%)

Figure 9. Deterrents to depositing in the Loughborough Repository

Deterrents to depositing

Number of research students
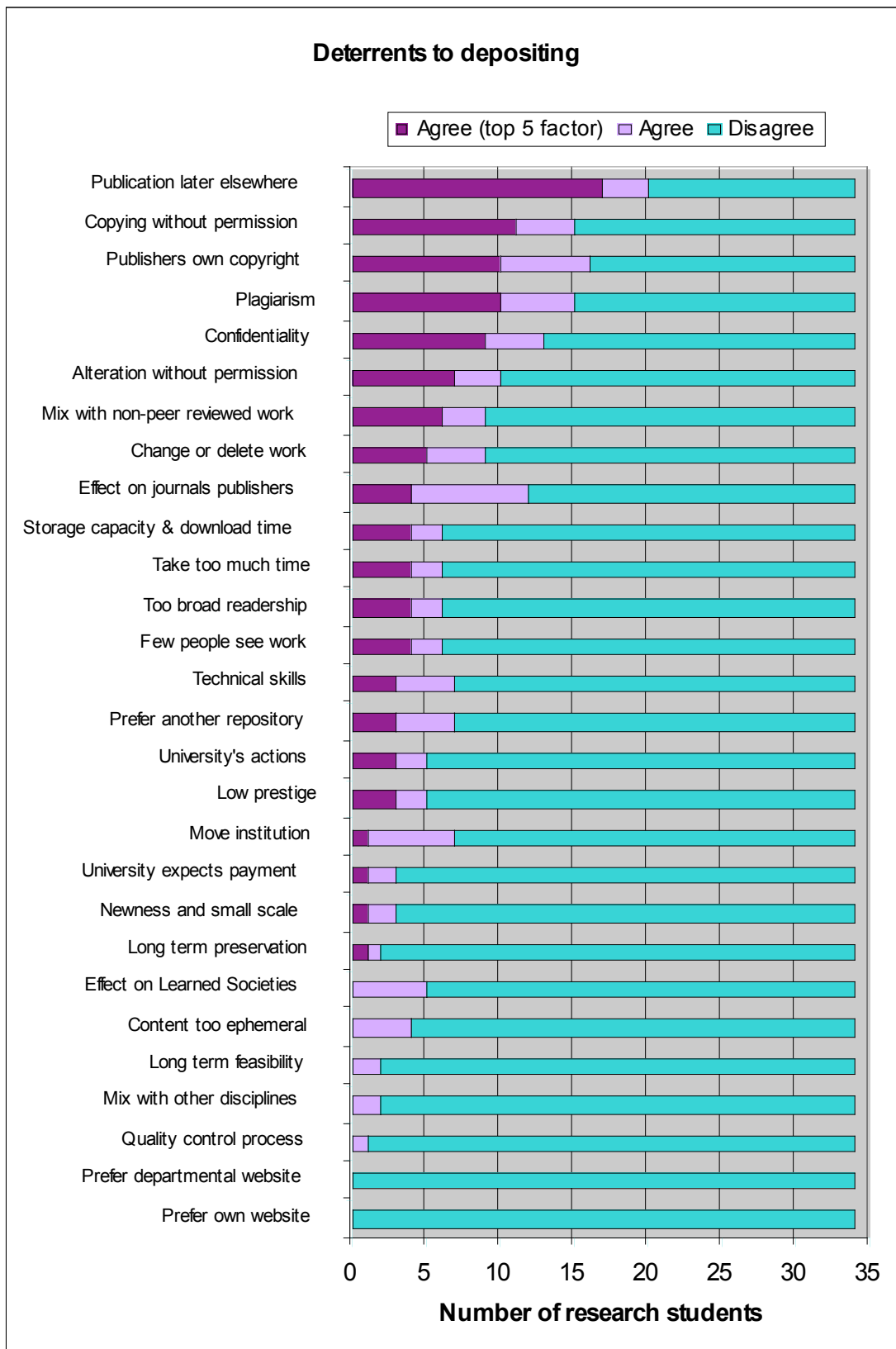
On the whole, research students were philosophical about depositing their work in the LUIR. For example, some recognised that work did not have to be in a repository to be at risk of alteration:

> "but this could happen with any published work" (Engineering student)

or plagiarism:

> "but it can happen even with paid journals" (Science student).

The long term feasibility of the repository was hardly a problem at all:

> "If it goes down, it goes down – that's life" (SSH student),

nor was the 'newness' and initially small scale of the repository:

> "It'll grow" (SSH student)

> "That's going to change" (SSH student).

The decision to deposit

In the final question of the interview, research students were asked whether, on balance, they would deposit their work in the LUIR. Only one student (an Engineer) said he would not.

Discussion: reasons for and against depositing work in an IR

Accessibility and impact

The importance of dissemination and impact proved to be a recurring theme throughout this project. It has been shown that enhanced visibility of research output benefits an author. By choosing the communication of results as their top reason for publishing and the dissemination of work as their most important motivating factor for depositing in the LUIR, the

findings from the research students unequivocally support this view. It is significant that seven of their eleven top ranked motivating factors relate to accessibility and impact (see Figure 8).

In wanting to make their work available to others, the students are expressing similar views to those of the academic authors in Swan and Brown's studies (Swan and Brown, 2004: 220; Swan and Brown, 2005: 11). However, the reasons for wanting to disseminate their work are slightly different for the two groups. Academics want a high readership in a prestigious publication to increase their chances of being cited (Swan and Brown, 2005: 10), but research students are more motivated by the opportunity to get feedback and commentary (see Figure 8). Students are used to receiving feedback from their supervisors, colleagues and peers. They view it in a constructive way and use it to improve the quality of their work. Their relative lack of experience in research, coupled with their need for excellence in their theses, ensure that feedback and commentary from others in their field are highly valued.

Rights

Rights issues constitute the major deterrents to depositing. Concerns over publishing later elsewhere, others copying work without permission, the ownership of copyright, plagiarism, confidentiality and the alteration of work are students' top six ranked deterrents.

Again, these findings replicate those of other studies of academic authors. Most of these concerns, however, may be addressed by appropriate user education. The risks of others copying, altering and plagiarising work are no greater for material deposited in an IR than for any other digital copy.

Clearly it is essential that the IR has appropriate rights management software, and it is equally important that potential depositors are made aware of the protection this software offers.

Research students have several reasons for being concerned about the confidentiality of their work. Among those mentioned were:

• Restrictions imposed by research funders

• Restrictions arising from shared data collection

• Ethical issues associated with sensitive personal information

• Professional protectiveness

However, these reasons do not apply to all students, nor to all their work. Authors must be encouraged to publish what they can on the IR, if necessary by anonymising or suppressing sensitive information.

Concern over the ownership of the copyright of previously published articles is reasonable, but again, it can be addressed. In the first instance, the SHERPA/RoMEO list of publishers' policies can be checked to establish whether the copyright holder is a 'green' publisher (Harnad *et al.*, 2004) and will therefore allow the publication of postprints on an IR. If not, Harnad recommends contacting the publisher directly to ask for permission to deposit the work. With some 90% of publishers being willing to allow deposit of postprints (Harnad, 2005), this concern actually only applies to a minority of articles.

The top deterrent is, however, the effect of deposit on later publication. Given that their doctoral research is likely to provide the raw material for their first crop of published papers, the student may feel worried about jeopardising their chances of having a paper accepted if they 'pre-publish' it

in an IR. There are several solutions to this:

- Check the target journal's policy before posting a preprint to the IR

- Select a target journal that will allow prior deposit in an IR

- Deposit only postprints in the IR

- Post an earlier or substantially different version of the article to the IR

- Use the IR as a place to deposit the type of work that cannot be published in a traditional journal

Finally, there is one rights-related factor that actually motivates authors to deposit their work in the IR. The opportunity to prove ownership and establish priority is ranked ninth in the list of motivations for research students. Even if the importance of this factor is discipline-dependent (Hubbard, 2003: 244), it may nonetheless be promoted as a positive incentive to posting work to the IR.

The principle of open access

Swan and Brown have consistently found the principle of OA to be the most frequently given reason for publishing in an OA format (Swan and Brown, 2004: 220; Swan and Brown, 2005: 10). Nearly all the research students agreed with this philosophy, and almost half felt it was an important motivating factor. Their almost unanimous agreement that they would deposit their work in the LUIR bears this out.

Appealing to this point of principle may be an effective way to encourage students and others to deposit their work in the LUIR.

Influence of other people

As far as research students are concerned, they are willing to be encouraged by their supervisors (ranked fifth), their department and their research funders to deposit their work in the LUIR. Encouragement from co-authors, fellow students and, least of all, library staff (ranked 30th), is not important to them.

This result clearly impacts on the likely effectiveness of advocacy by different parties. It suggests that while exhortation on the part of library staff is likely to go unheeded, encouragement to deposit from the supervisor may be very effective. Library advocates might therefore be advised to concentrate on convincing supervisors of the merits of the LUIR, and leave them to encourage their research students.

Quality

The present and future quality of OA material has been the subject of discussion in the literature. Far from seeing the IR as an opportunity to get published more easily (ranked 29th out of 32 in the list of motivations), many students were concerned about the quality of their own work. Several commented that they would not want to deposit work that had not first been reviewed by their supervisor.

Nine students agreed with the statement 'I do not want to put my work with work that has not been peer-reviewed'. This demonstrates a misunderstanding of the way an IR operates. Several of the deterrents chosen by research students are based on misconceptions such as this (a small audience, broad readership and low prestige are examples).

This finding is perhaps a little unfair. Many students had no knowledge of repositories before the interview and were expected to give their opinions after relatively little discussion. Moreover, they were probably misled by the existence of these statements. The justification for including them was to establish what might worry users, so that those responsible for the LUIR can offer appropriate user education to relieve these concerns.

Assistance with use

User education and support will also be important in a practical sense. Although far from their top priority (and not normally selected as 'important' in the second phase of the interview), most students agreed that online instructions, training, and the availability of a nominated departmental representative, would motivate them to deposit their work. Conversely, the fear that they hadn't the technical skills necessary, or that the process of depositing would take too much time, were significant for a minority of students. The literature suggests these concerns are needless, but one solution is to offer mediated deposit, either to struggling individual authors or for an initial start-up period.

Additional services

That an IR offers services over and above those provided by conventional publishers is well recognised. Students liked the idea of gathering information for career purposes (7th in the list of motivating factors) and publishing supplementary material (12th). They did not see the role of the repository as encompassing version control (31st) or preservation (32nd).

Thirty of the students agreed that they would be motivated by the

opportunity to 'take advantage of added services such as download counts and cross-searching', but only four students felt this was particularly important to them. In common with user training, this underlines the distinction between what is 'nice to have' and what is really important. Thus added services may attract the attention of users (and therefore be helpful in promoting the repository), but what matters more are the core features of accessibility and rights.

Longer term issues

The importance of long term commitment and support for the IR from the institution has already been noted. Because of this, students were shown several statements relating to the permanence of their work in the repository. The long term feasibility of the repository, the transience of material and the preservation of their work did not concern most students. In fact, the ability to delete their work later was of greater importance to them.

Since deletion of material is not normally an option for a digital repository, there will again be a need for user education. Contributors should be encouraged to view deposit in the IR in the same way as publication in a journal or presentation at a conference – once the work is out there, it is there for good.

Of course, the control the institution has over an IR may render other options possible. For example, the institution may have different policies for different types of materials. Alternatively, a logically or physically separate repository may be maintained for temporary copies of working papers, thesis chapters or other work in progress. Temporary work may be

automatically deleted after a set period, or there may be an option for the author to transfer it (with or without modifications) to permanent storage. This model replicates the facilities provided by subject repositories which permit the deposit of preprints and facilitate feedback and commentary.

Effect on others

The only remaining high ranking factor to concern students is the effect of IRs on journals' publishers. Only four students chose this as an important deterrent to depositing in the LUIR, but nearly one third agreed with the statement. One student felt that OA publishing would negatively impact on journal quality, but most did not expand on their reasons for concern so it is difficult to know whether they feel that IRs are a threat to publishers or to scholarship.

Research students as readers

Most of students' previous experience of OA publishing has been in the role of reader. Whether aware of it or not, they have accessed OA material through search engines, subject gateways and other online pathways. They are familiar with evaluating published material and they have firm ideas of what they want and need as readers.

Although not the main focus of this project, it is clear that students' experiences as readers are likely to colour their attitudes as authors.

In the middle part of the interview the students were invited to say which types of work they would like to find in the LUIR. Unlike the RoMEO study which found that academics as readers were less demanding than

academics as authors (Gadd *et al*., 2003b: 171), research students as readers generally wanted more from the repository than they themselves were willing to offer.

Electronic theses

Complete theses were the type of work most sought after by research students as readers. The IR is in a unique position to make theses available online.   Indeed, there are many IRs which either comprise only electronic theses and dissertations (ETDs) or have specialist ETD collections within a broader repository. Examples include the Digital Library of MIT theses <http://thesis.mit.edu/> and the University of Edinburgh <http://www.era.lib.ed.ac.uk>.

For IR administrators, there are a number of advantages in creating an ETD archive:

• Copyright in theses generally resides with the author or the institution and can easily be established. The rights problems associated with preprints and postprints do not apply.

• The status of theses is unambiguous. Having been through an examination process, their quality is guaranteed.

• Students can be mandated to deposit their theses, thereby guaranteeing the growth of content.

• Complete copies of theses are unlikely to be easily available elsewhere. A relatively small proportion of printed theses are available outside of the host institution and the only alternative format is usually the microfiche.

• There are ethical justifications for making theses available. Many research students are funded by public money, and their output should therefore be publicly available.

- The capability of the IR to store supplementary material such as data and results is a bonus.

With high demand for theses and relative ease of supply, ETDs should be a core part of a university's IR.

Other types of material

After theses, the types of material most wanted by research students are postprints, conference papers, book chapters, presentations, books and research reports (Figure 5). These are the types of work typically found on existing IRs (Swan and Brown, 2005: 58). Again, the IR is uniquely positioned to make these available to a wide audience. Presentations, research reports and even conference papers are otherwise often inaccessible to anyone other than the original target audience.

Recommendations

As a result of these research findings, the following recommendations are made.

Repository content

The deposit of all types of material should be encouraged. If this is not feasible, then theses, postprints, conference papers and book chapters should, as a minimum, be permitted in the repository. These are among the most acceptable formats for research students as both authors and readers.

Metadata and harvesting

In addition to standard bibliographic details, the metadata for each item should inform readers of the provenance of work. Fields might include the

document type, a 'peer reviewed' indicator, the authors' affiliation and details of any prior publication of the work. However an article is located (whether by browsing or key word search), its provenance should be clear to the reader.

The IR should be fully accessible from within and outside the institution. It should be OAI-PMH compliant, and registered for harvesting by key service providers such as Google Scholar. Despite its relative newness, research students already value Google Scholar as a tool for searching the 'hidden' web.

Intellectual property rights

Research students are more concerned about rights issues than any other factors and, as authors, they must be able to make an informed decision. They need reassurance that they are neither infringing copyright on their own published work, nor jeopardising their chances of future publication.

Online help in the form of answers to FAQs should be available, covering

- the ownership of copyright
- the implications of depositing material for subsequent publication (including how to avoid future problems)
- plagiarism
- file security

A link to the SHERPA/RoMEO list of journals' publishers' self-archiving policies <http://romeo.eprints.org/> should be provided.

Providing added value

The provision of added value services will give students an extra incentive

both to deposit their work and to search for material on the repository. The benefits of these services should feature in promotional activities.

Added value services most likely to be popular with research student authors include:

- personal publication lists (especially useful for compiling their CVs)
- mediated upload for the nervous or the time-constrained
- standardisation of metadata, especially key words
- impact indicators such as hit counts on papers, download statistics and citation analyses – all of these provide valuable feedback to a new author.

Added value services for student readers include:

- 'quality' indicators (as described above)
- browseable subject-based collections of material
- publication of supplementary material
- links to cited material
- cross-searching of internal and external repository collections.

User education and training

User education is essential. It serves to instruct, inform and persuade university members of the benefits of the IR. In this respect, the needs of research students are no different from those of any other IR users. Some options for providing education and training include:

For authors:

- Standalone training sessions covering the process and procedures for depositing work. There should be appropriate links to information about these sessions on the library's web site and on the library's pages on the

university's VLE.

- Context sensitive help during the upload process.

For readers:

- Inclusion of the IR as a resource in existing user education sessions for both staff and students.
- Instruction in the use of search engines covering OA material, for example those of service providers such as OAIster <http://oaister.umdl.umich.edu/o/oaister/>, ARC <http://arc.cs.odu.edu/> and e-prints UK <http://eprints-uk.rdn.ac.uk/search/>.

For both authors and readers:

- Online help pages
- Downloadable user instructions
- Printed fact sheets

User education should cover:

- the practical issues of depositing and accessing work
- the benefits of using the IR
- the possible risks involved with depositing work, and how to avoid them.

Promotion and advocacy

The purpose of advocacy is to promote the motivations for using the IR and reassure users who may be worried about the deterrents. Promotion of the repository should begin with internal marketing to library staff with a view to gathering a team of enthusiastic IR advocates. Those who are most skilled at communicating their enthusiam should be selected for promotional work.

Advocacy activities should be directed firstly at academic staff, and then, with their help, to research students. It has been shown that students are more likely to heed the advice of their supervisors than that of library staff. Successively targeting individual departments may be the most efficient approach.

Possible mechanisms for promotion and advocacy include:

- Seminars and presentations
- Leaflets, posters, newsletters and other printed literature.
- Links from library web pages, including a link to the repository home page from the library home page, as well as appropriate links from the library catalogue to individual items.
- Targeted emails to opinion leaders (e.g. research supervisors)
- Email updates and reminders as content increases.

To attract research student authors, the following should feature in promotional activity:

- the principle of open access
- the opportunity to disseminate work
- the opportunity to receive feedback
- the potential for increased citation rate and impact

Staffing

In addition to the technical staff necessary to set up the repository and create and update supporting web pages, the IR should be sufficiently resourced with trained staff in the areas of:

- Checking intellectual property rights
- Collection and identification of bibliographic data

- Metadata creation

- User education and training

- Advocacy

The experience of other repositories is that the workload associated with implementing a repository always exceeds expectations.

It is important that IR management work collaboratively with university members, including research students, academic staff, IT services and senior management, to ensure the IR is accepted and valued.

Conclusion

With respect to an IR, the role and needs of research students have been shown to be quite similar to those of any other academic authors. The students interviewed were generally positive about OA and keen to both share their own work and gain access to that of other researchers. The ability to disseminate their work and receive commentary and feedback were the most important motivators to students depositing work, closely followed by the principle of open access. The greatest deterrents were the risk of being unable to publish elsewhere later, the ownership of copyright, and plagiarism.

The differences that exist between the views of academic authors and research students lie mainly in the relative importance they place on the different factors. Thus, while students were particularly interested in the opportunities offered by the IR for feedback on their work, and concerned about the risks for subsequent publication; published academic authors prioritised the dissemination and impact of their work and were concerned with avoiding infringements of copyright. These differences could simply be

explained by the differing perspectives of the two groups – that of novice and experienced author. Alternatively, the research student view expressed here may be representative only of the relatively small sample in the study and further research is required.

Interest in IRs is growing rapidly. In the months since this project was completed, there have been two international meetings focusing on this area (ETD2005 in Sydney, Australia <http://adt.caul.edu.au/etd2005/etd2005.html> and the E-LIS First workshop on eprints in library and information science <http://www.aepic.it/conf/index.php?cf=4>); the RCUK has confirmed its commitment to making research outputs funded by the taxpayer openly accessible <http://www.rcuk.ac.uk/press/20050921rcuk.asp>, a move which will certainly have implications for future research students; JISC has won a massive increase in funding to support the development of IRs in Higher Education (Library and Information Update, 2005:7); and the discussions in Harnad's American Scientist Open Access Forum <http://amsci-forum.amsci.org/archives/American-Scientist-Open-Access-Forum.html> continue unabated. These are, without doubt, interesting times.

References

Ayris, P., 2001. Open archives: institutional issues. *Vine*, **125**: 34-37.

<http://oberon.emeraldinsight.com/...>, [accessed 16.06.05].

Banks, P., 2004. Open access: a medical association perspective.

Learned Publishing [online], **17**(2): 135-142.

<http://docserver.ingentaconnect.com/...>, [accessed 27.05.05].

Berry, R.S., 2000. 'Full and open access' to scientific information: an

academic's view. *Learned Publishing* [online], **13**(1): 37-42.

<http://puck.ingentaconnect.com/...>, [accessed 16.06.05].

Carr, L. and Harnad, S., 2005. *Keystroke economy: a study of time and*

effort involved in self-archiving.

<http://eprints.ecs.soton.ac.uk/10688/01/KeystrokeCosting-

publicdraft1.pdf>, [accessed 28.06.05].

Chan, L. *et al.*, 2002. Budapest Open Access Initiative. *ARL Bimonthly*

Report [online], **220**. <http://www.arl.org/newsltr/220/boai.html>, [accessed

13.06.05].

Crow, R., 2002. The case for institutional repositories: a SPARC position

paper. <http://www.arl.org/sparc/IR/IR_Final_Release_102.pdf>, [accessed

26.05.05].

De Beer, J.A., 2005. Open acess scholarly communication in South Africa: current status, significance, and the role for national information policy in the national system of innovation. MPhil dissertation, Department of Information Science, Stellenbosch University (South Africa). <http://eprints.rclis.org/archive/00003922/01/DeBeerJenniferMThesisFinal.pdf>, [accessed 24.06.05>

Falk, H., 2004. The revolt against journal publishers. The Electronic Library [online], **22**(2): 184-187. <http://ceres.emeraldinsight.com/...>, [accessed 27.05.05].

Foster, N.F. and Gibbons, S., 2005. Understanding faculty to improve content recruitment for institutional repositories. *D-Lib Magazine* [online], **11**(1). <http://www.dlib.org/dlib/january05/foster/01foster.html>, [accessed 26.05.05].

Gadd, E. *et al*., 2003a. RoMEO studies 2: How academics want to protect their open access research papers. *Journal of Information Science* [online], **29**(5): 333-356. <http://psea1.swetswise.com/...>, [accessed 27.05.05].

Gadd, E. *et al*., 2003b. RoMEO studies 3: How academics expect to use open-access research papers. *Journal of Librarianship and Information Science* [online], **35**(3): 171-187. <http://psea1.swetswise.com/...>, [accessed 27.05.05].

Hajjem, M.C. and Harnad, S., 2005. *Accès libre aux articles scientifiques et mouvement d'auto-archivage à l'QUAM.* <http://www.crsc.uqam.ca/lab/chawki/Auto-archivaeuqam.pdf>, [accessed 24.06.05].

Harnad, S., 2005. Journal Publishing and Author Self-Archiving. *American Scientist Open Access Forum*, SIGMAXI.ORG, 25 August 2005, 17:25:44 +0100 GMT.

Harnad, S. *et al*., 2004. The Access/Impact Problem and the Green and Gold Roads to Open Access. Serials Review. *Serials Review* [online], **30**(4): 310-314. <http://eprints.ecs.soton.ac.uk/10209/01/impact.html>, [accessed 26.08.05].

House of Commons Science and Technology Committee, 2004.   *Scientific publications: Free for all?* <http://www.publications.parliament.uk/pa/cm200304/cmselect/cmsctech/399/399.pdf>, [accessed 04.02.06].

Hubbard, B., 2003. SHERPA and institutional repositories. *Serials* [online], **16**(3): 243-247. <http://uksg.metapress.com/...>, [accessed 26.06.05].

Lamb, C., 2004. Open access publishing models: opportunity or threat to scholarly and academic publishers? *Learned Publishing* [online], **17**(2): 143-150. <http://docserver.ingentaconnect.com/...>, [accessed 26.05.05].

Library and Information Update, 2005. Jisc gets serious money. *Library and Information Update*. **4**(11): 7.

Lynch, C.A., 2003. Institutional repositories: essential infrastructure for scholarship in the digital age. *ARL Bimonthly Report* [online], **226**: 1-7. <http://www.arl.org/newsltr/226/ir.html>, [accessed 05.06.05].

Nicholas, D. *et al*., 2005. In their very own words: authors and scholarly journal publishing. *Learned Publishing* [online], **18**(3): 212-220. <http://docserver.ingentaconnect.com/...>, [accessed 29.10.05].

Research Councils UK, 2005. *News release: 28 June 2005. RCUK announces proposed position on access to research outputs*. <http://www.rcuk.ac.uk/press/20050628openaccess.asp>, [accessed 30.06.05].

Rowlands, I. *et al*., 2004. *Scholarly communication in the digital environment: what do authors want?* London: Centre for Information Behaviour and the Evaluation of Research. <http://ciber.soi.city.ac.uk/ciber-pa-report.pdf>, [accessed 16.06.05].

Schroter, S. *et al*., 2005. Perceptions of open access publishing: interviews with journal authors. *British Medical Journal* [online], **330** (7494): 756-759*.* <http://bmj.bmjjournals.com/cgi/reprint/330/7494/756>, [accessed 16.06.05].

Suber, P., 2003. Bethesda Statement on Open Access Publishing. <http://www.earlham.edu/~peters/fos/bethesda.htm>, [accessed 13.06.05].

Swan, A and Brown, S., 2003. Authors and electronic publishing: what authors want from the new technology. *Learned Publishing* [online], **16**(1): 28-33. <http://ceres.ingentaconnect.com/...>, [accessed 27.05.05].

Swan, A. and Brown, S., 2004. Authors and open access publishing. *Learned Publishing* [online], **17**(3): 219-224. <http://docserver.ingentaconnect.com/...>, [accessed 27.05.05].

Swan, A. and Brown, S., 2005. *Open access self-archiving: an author study*. Truro: Key Perspectives Limited. Available online at: <http://www.jisc.ac.uk/uploaded_documents/Open%20Access%20Self%20 Archiving-an%20author%20study.pdf>, [accessed 10.06.05].

Ware, M., 2004. Institutional repositories and scholarly publishing. *Learned Publishing* [online], **17**(2): 115-124. <http://docserver.ingentaconnect.com/...>, [accessed 26.05.05].